

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1-47. (Cancelled)

48. (Currently Amended) A method comprising:

forming a funnel insert with a first diameter portion larger than a second diameter portion;

forming a filler tube including a funnel portion having a first diameter and a first axis and an elongated portion having a second diameter smaller than said first diameter and a second axis offset from said first axis; and

attaching said funnel portion of said filler tube to said second portion of said funnel insert; and

configuring a transition portion of said funnel portion to induce a swirl to passing fuel for venting vapors from said fuel tank during fuel filling.

49. (Cancelled)

50. (Previously Presented) The method of Claim 48, further comprising forming a sealing surface about an inlet opening to said funnel insert.

51. (Previously Presented) The method of Claim 50, wherein said forming a sealing surface includes rolling over an edge defining the inlet opening.

52. (Previously Presented) The method of Claim 48, further comprising cutting a length of tube stock to form said filler tube.

53. (Previously Presented) The method of Claim 48, further comprising forming a nozzle receptor in said funnel insert.

54. (Previously Presented) The method of Claim 48, further comprising joining opposite ends of a vent tube to said funnel portion and said fuel tank, respectively.

55. (Previously Presented) The method of Claim 48, further comprising joining a vent tube to said funnel portion of said filler tube.

56. (Previously Presented) The method of Claim 48, further comprising forming threads in said funnel insert.

57. (Cancelled)

58. (Currently Amended) The fuel filler tube assembly of Claim ~~57~~105, wherein said outlet of said filler tube is attached to a fuel tank.

59. (Currently Amended) The fuel filler tube assembly of Claim ~~57~~105, further comprising a vent tube connected to said filler tube.

60. (Previously Presented) The fuel filler tube assembly of Claim 59, wherein said vent tube also connects said filler tube and said fuel tank.

61. (Cancelled)

62. (Currently Amended) The fuel filler tube assembly of Claim ~~61~~105, wherein said internal configuration of said tubular body includes a tapered section of said tubular body.

63. (Previously Presented) The fuel filler tube assembly of Claim 62, wherein said tapered section includes an elliptically shaped junction between a first portion of said tubular body including said inlet and a second portion of said tubular body including said outlet.

64. (Previously Presented) The fuel filler tube assembly of Claim 63, wherein said elliptically-shaped junction lies on a plane inclined at an angle to an axis of at least one of said inlet and said outlet.

65. (Previously Presented) The fuel filler tube assembly of Claim 63, wherein said inlet has a diameter D_1 , said outlet has a diameter D_2 , and D_1 is at least one and a half times D_2 .

66. (Currently Amended) The fuel filler tube assembly of Claim ~~57~~105, wherein said filler tube is a seamless tube.

67. (Currently Amended) The fuel filler tube assembly of Claim ~~57~~105, wherein said funnel insert is a seamless tube.

68. (Currently Amended) The fuel filler tube assembly of Claim ~~57~~105, wherein said funnel insert includes integrally formed threads.

69. (Currently Amended) The fuel filler tube assembly of Claim ~~57~~105, further comprising a fuel cap selectively engaging said funnel insert.

70. (Currently Amended) The fuel filler tube assembly of Claim ~~57~~105, wherein said funnel insert includes a sealing surface operable to selectively engage said fuel cap.

71. (Currently Amended) The fuel filler tube assembly of Claim 70, wherein said funnel insert includes a larger diameter portion having an inlet opening creating said sealing surface.

72. (Currently Amended) A method comprising:

drawing a funnel insert with a first diameter portion larger than a second diameter portion;

forming a funnel portion at an end of a filler tube, an opposite end of said filler tube being operable to be directly attached to a fuel tank;

forming a relatively large inlet at one end of said funnel portion, said inlet having a first axis;

forming a relatively small outlet at said opposite end of said funnel portion, said outlet having a second axis offset from said first axis; and

joining said second diameter portion of said funnel insert and said funnel portion of said filler tube; and

configuring a transition of a tubular body between said inlet and outlet to induce a swirl to and vent vapors from fuel flowing through said funnel portion.

73. (Previously Presented) The method of Claim 72, further comprising attaching said opposite end of said filler tube to a fuel tank.

74. (Cancelled)

75. (Previously Presented) The method of Claim 72, further comprising forming threads in said first diameter portion of said funnel insert.

76. (Previously Presented) The method of Claim 72, further comprising forming a sealing surface about said first diameter portion of said funnel insert.

77. (Previously Presented) The method of Claim 76, wherein said forming a sealing surface includes rolling over an edge defining an inlet opening.

78. (Previously Presented) The method of Claim 72, further comprising forming a nozzle receptor in said second diameter portion of said funnel insert.

79. (Previously Presented) The method of Claim 72, further comprising cutting a length of tubing stock to form said filler tube.

80. (Previously Presented) The method of Claim 72, further comprising joining an end of said filler tube opposite said funnel insert to said fuel tank.

81. (Previously Presented) The method of Claim 80, further comprising joining opposite ends of a vent tube to said funnel portion and said fuel tank, respectively.

82. (Previously Presented) The method of Claim 72, further comprising joining a vent tube to said funnel portion of said filler tube.

83. (Currently Amended) A fuel filler tube assembly comprising:

a filler tube including a tubular body defining an inlet larger than an outlet;

and

a funnel insert including a first cylindrical section ~~received in said inlet of said filler tube~~, a second cylindrical section ~~operable to receive a fuel nozzle~~, and a third cylindrical section disposed between said first cylindrical section and said second cylindrical section, and a tapered surface extending between said first cylindrical section and said third cylindrical section, said first cylindrical section received in said inlet of said filler tube with said tapered surface engaging a surface of said inlet when said first cylindrical section is disposed within said inlet of said filler tube~~said first cylindrical section, said second cylindrical section, and said third cylindrical section each having a different diameter.~~

84-85. (Cancelled)

86. (Previously Presented) The fuel filler tube assembly of Claim 83, wherein said funnel insert is a seamless tube.

87. (Previously Presented) The fuel filler tube assembly of Claim 83, wherein said funnel insert includes integrally formed threads.

88. (Previously Presented) The fuel filler tube assembly of Claim 83, further comprising a fuel cap selectively engaging said funnel insert.

89. (Previously Presented) The fuel filler tube assembly of Claim 83, wherein said funnel insert includes a sealing surface formed about said second cylindrical section.

90. (Previously Presented) The fuel filler tube assembly of Claim 89, wherein said second cylindrical section includes an inlet opening and a portion of said funnel insert defining said inlet opening creates a sealing surface.

91. (Currently Amended) A fuel filler tube assembly comprising:
a filler tube including a tubular body defining an inlet larger than an outlet;
and

a funnel insert including a first section, a second section, and a tapered surface extending between said first section and said second section, said first section received by said inlet of said filler tube and including a nozzle retainer;

wherein said tapered surface engages a surface of said inlet when said first section is disposed within said inlet of said filler tube.

92. (Cancelled)

93. (Previously Presented) The fuel filler tube assembly of Claim 91, wherein said funnel insert is a seamless tube.

94. (Previously Presented) The fuel filler tube assembly of Claim 91, wherein said funnel insert includes integrally formed threads.

95. (Previously Presented) The fuel filler tube assembly of Claim 91, further comprising a fuel cap selectively engaging said funnel insert.

96. (Previously Presented) The fuel filler tube assembly of Claim 91, wherein said funnel insert includes a third section formed adjacent said second section.

97. (Previously Presented) The fuel filler tube assembly of Claim 96, wherein a sealing surface is formed about said third section.

98. (Previously Presented) The fuel filler tube assembly of Claim 97, wherein said third section includes an inlet opening and a portion of said funnel insert defining said inlet opening creates a sealing surface.

99-104. (Cancelled)

105. (New) A fuel filler tube assembly comprising:

a funnel portion of a filler tube including a tubular body defining an inlet larger than an outlet, said inlet of said funnel portion having a first axis and receiving a funnel insert including a nozzle opening positioned to cooperate with an internal configuration of said tubular body between said inlet and said outlet to induce a swirl to

vent vapors from fuel flowing through said tubular body, said outlet having a second axis offset from said first axis.

106. (New) A method comprising:

drawing a funnel insert with a first diameter portion larger than a second diameter portion;

forming a funnel portion at an end of a filler tube, an opposite end of said filler tube being operable to be directly attached to a fuel tank;

forming a relatively large inlet at one end of said funnel portion, said inlet having a first axis;

forming a relatively small outlet at said opposite end of said funnel portion, said outlet having a second axis offset from said first axis;

joining said second diameter portion of said funnel insert and said funnel portion of said filler tube; and

forming a nozzle receptor in said second diameter portion of said funnel insert.

107. (New) The method of Claim 106, further comprising attaching said opposite end of said filler tube to a fuel tank.

108. (New) The method of Claim 106, further comprising configuring a transition of said tubular body between said inlet and outlet to induce a swirl to and vent vapors from fuel flowing through said funnel portion.

109. (New) The method of Claim 106, further comprising forming threads in said first diameter portion of said funnel insert.

110. (New) The method of Claim 106, further comprising forming a sealing surface about said first diameter portion of said funnel insert.

111. (New) The method of Claim 110, wherein said forming a sealing surface includes rolling over an edge defining an inlet opening.

112. (New) The method of Claim 106, further comprising cutting a length of tubing stock to form said filler tube.

113. (New) The method of Claim 106, further comprising joining an end of said filler tube opposite said funnel insert to said fuel tank.

114. (New) The method of Claim 113, further comprising joining opposite ends of a vent tube to said funnel portion and said fuel tank, respectively.

115. (New) The method of Claim 106, further comprising joining a vent tube to said funnel portion of said filler tube.